<u>Amendments to the Claims</u>:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. - 7.   (cancel)

8. - 9.   (cancelled)

10. - 17.   (cancel)

18. - 19.   (cancelled)

20.   (cancel)

21.   (cancelled)

22. - 28.   (cancel)

29.   (new)   A method for inspecting electronic components mounted on a printed circuit board with a mounting substance, each of the components including electrical interconnects to the circuit board as typified by leads or endcaps, the method comprising:

imaging the components and the mounting substance on the printed circuit board to obtain 3-D and 2-D data associated with the components and material surrounding the components; and

processing the 3-D and 2-D data in combination to form blob and edge images wherein the step of processing includes evaluating the blob and edge images to find the locations of the components as a function of the 3-D and 2-D data and based on identified leads, endcaps, or other component features as differentiated from the mounting substance and circuit board on which the components are placed.

30.   (new) The method as claimed in claim 29, wherein the mounting substance is solder paste.

31.   (new) The method as claimed in claim 29, wherein the mounting substance is an adhesive.

32.   (new) The method as claimed in claim 31, wherein the adhesive is a glue.

33.   (new) The method as claimed in claim 29, wherein the leads have feet and wherein the step of processing includes the step of calculating centroids of the feet.

34.   (new) The method as claimed in claim 29, wherein the leads have feet and wherein the step of processing includes the step of calculating average height of the feet.

35.   (new) The method as claimed in claim 29, wherein the step of processing includes calculating a percentage of pixels classified as the mounting substance that are at an area of interest border to determine a potential for bridging between adjacent solder deposits, and the percentage of pixels comprises a border violation percentage.

36.   (new) The method as claimed in claim 29, wherein the step of processing includes the step of processing the 3-D data together with upper and lower threshold values to find the location of the leads and the mounting substance.

37.   (new) The method of claim 29, wherein the step of processing comprises masking at least one of the 2-D and 3-D data with the blob image.

38.   (new) The method of claim 29, wherein the step of processing includes the step of applying at least one threshold to the at least one of the 2-D and 3-D data.

39.   (new)   The method of claim 29 further comprising detecting an edge of the blob image and applying a bounding rectangle to the edge.

40.   (new)   The method of claim 39, wherein the bounding rectangle is a minimum area rectangle, and wherein the bounding rectangle is used to determine component position and orientation.

41.   (new)   The method of claim 29, wherein the step of processing comprises comparing at least one of a predetermined three-dimensional size and shape of a component with 3-D data representative of the component so as to verify component presence.

42.   (new)   The method of claim 29, wherein the step of processing comprises comparing at least one of a predetermined three-dimensional size and shape of an attribute of the component with 3-D data representative of the attribute to verify component presence.

43.   (new)   A system for inspecting electronic components mounted on a printed circuit board with a mounting substance, each of the components including electrical interconnects to the circuit board as typified by leads or endcaps, the system comprising:
        a 3-D scanner for imaging the components and mounting substance on the printed circuit board to obtain 3-D and 2-D data associated with the components and material surrounding the components; and
        a high-speed image processor for processing the 3-D and 2-D data in combination to form blob and edge images wherein the image processor also evaluates the blob and edge images to find the locations of the components as a function of the 3-D and 2-D data and based on identified leads, endcaps, or other component features as differentiated from the mounting substance and circuit board on which the components are placed.

44.   (new)   The system as claimed in claim 43, wherein the mounting substance is solder paste.

45.   (new) The system as claimed in claim 43, wherein the mounting substance is an adhesive.

46.   (new) The system as claimed in claim 45, wherein the adhesive is a glue.

47.   (new) The system as claimed in claim 43, wherein the leads have feet and wherein the image processor also calculates centroids of the feet.

48.   (new) The system as claimed in claim 43, wherein the leads have feet and wherein the image processor also calculates average height of the feet.

49.   (new) The system as claimed in claim 43, wherein the image processor also calculates a percentage of pixels classified as mounting substance that are at an area of interest border to determine a potential for bridging between adjacent solder deposits, and the percentage of pixels comprises a border violation percentage.

50.   (new) The system as claimed in claim 43, wherein the image processor also masks at least one of the 2-D and 3-D data with the blob image.

51.   (new) The system as claimed in claim 43, wherein the image processor processes the 3-D data with upper and lower threshold values to find the locations of the leads and the mounting substance.